(2) Frictions as a remedy for certain diseases. 1809.

An
Inaugural Dissertation
On
Frictions as a Remedy for certain
diseases.
Submitted to the examination of
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The
Trustees & Medical Faculty
of the
University of Pennsylvania,
For the degree of
Doctor of Medicine by
Lazarus Horsey of
Maryland

Horsey 1809

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Upon fractions as a remedy for certain diseases

Friction in a Mechanical point of view may be considered as that resistance which arises from the rubbing hard bodies one against another; but in a Medical the rubbing of a part of the body, by which its action is increased, the latter as applied to the body for the cure of certain diseases is what I shall particularly confine myself to. — This remedy I believe has been used in every age & nation for the cure of certain diseases, but on account of its indiscriminate use (arising probably from a want of proper distinction being made between weak & great morbid action) it was not followed with that suc-

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cep which the nature of the remedy & its effects on the healthy constitution seemed to promise & of course fell into disrepute together with others, some of which are to be ranked among the most important particles of the Materia Medica. It may not be improper to mention that this was the case in the reign of Homoeology, when her empire was coextensive with the earth or in other words when she reigned universally. —— Happily for the Science of Medicine, the name of a disease is no longer considered the sine qua non to successful treatment. There are revolutions in Medicine as in empires & to the great honour & glory of America she has gained her independence. We may now hail! our happy country not only as the land of liberty, but of philosophy & just principles in Medicine. The weak medicines have

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have become strong, the most active, & the poisonous governed in their operation by the establishment of principles in Medicine — Every article in the Materia Medica is either a remedy or poison according to the dose & state of the system in which it is exhibited. Friction which I design as the subject of this essay is now to be snatched from amidst the inerties & to be placed among the active & more important articles of the Materia Medica. —

Instruments of Friction

The dry hand, the flesh-brush, flannel or linen, simple or impregnated with Myrrh as in China or other aromatic gums & liniments of a stimulating nature, or sweet oil. — These are to be used according circumstances & varied from the most agreeable titillation to the most exquisite

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hair, as the nature of the case or state of the of the system may demand. Different effects may be produced according to the smoothness or asperity of the bodies employed or the acrimony & stimulating nature of the articles

Effects of friction on the Bloodvessels

It expedites the circulation of the blood, by increasing the action of the heart & arteries, thereby contributing to the growth, nutrition & health of animals. promotes secretion & excretion, promotes absorption, hurries respiration &c. And when used in moderately produces all the bad effects that result from the excessive use of other stimuli.

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will increase the sensibility of the nervous system; hence Dr Thick directs the ends of the fingers to be rubbed on a rough surface previous to feeling the pulse, when you wish to determine on the rectitude of blood letting in doubtful cases. — Sensations the most pleasurable as well as most painful are effected by this cause, by varying the degree of action only. Thus, not all the good as well as evil in the world be attributed in part to this or something which acts similarly on the nervous system, producing pleasurable or painful sensations thereby promoting to deeds the most benevolent or atrocious according as the one or the other of these sensations predominates. All the passions & emotions of the mind seem to be founded on sensations & thus, not the effected alternately or in succession accord

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y to the degree of action of that or some dim
ear cause producing a pleasable or painful
ensation. —— It renders the senses more
cute; who is it, that hath not witnessed
s in the tender infant, after having awoke
from profound sleep, unable to see, languish
ver object from another, till it had rubbed
its little eyes & gave them that brilliancy
or lustre which seems necessary to perfect
ision. May it not aid the mind in bring
ing to its recollection long lost or forgotten
deas; we see something like this in the
ream of study or in persons anxious to re
llect some past event, rubbing their fore
head, & this they do without being conscious
of it. As the senses are the avenues to
knowledge, whatever renders them more acu
te must contribute essentially to the facil
ity of acquiring knowledge as well as the
durability of retaining it. The more

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& when [illegible]
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The more exquisite the sensation the quick-
er the perception & the more durable the
impression made on the mind. May not
the mind of man be considered as a mass
of simple perceptions & the difference in
minds or capacities of men, be owing to
these perceptions being differently compound-
ed, combined or associated, constituting
faculties, ideas & thoughts?

On the Muscles

These may be divided into voluntary
involuntary or mixt; it excites their
action, gives tone & strength to them
& when immoderately used converts the
voluntary into involuntary, constituting
spasm, convulsions &c

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On the Bowels

It diminishes their action, inducing costiveness, by producing a new & counter action; hence its use in diarrhoea, pains in the bowels, colics &c.

On the Skin

It produces heat, itching, redness, pain & excoriation &c. When gentle constitutes that exquisitely agreeable sensation called tickling, which every child has felt with rapturous transport.

The Parts to which it should be applied

It should be used generally or partially, according to circumstances. The following

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experiments were instituted, to prove the stimulant nature when partially applied. The experiments were made on my self. At the persuasion of one of my fellow students, at 12 o'clock at night, my pulse beating 64 strokes in a minute. Friction was first made with the dry hand, being previously warmed; this was applied to my right arm & continued for two minutes, when the pulse was examined which was as follows.

My pulse beating 64 strokes in a minute.

The number of beats was carefully examined in both arms.

Right arm

Minutes	2,	3,	5,	6,	8,	10,	15,	20
Pulse	64,	64,	65	65	66,	68,	73,	76

Left arm

Minutes	2,	3,	5,	6,	8,	10,	15,	20
Pulse	64,	64,	64,	64	65	65,	66,	68

when the friction was stopped

The accumulation of the bulbs was continued
till the friction was stopped the result was
as follows

Right arm

Minutes	25	30	35	40	50	60	70	80	100
bulbs	76	75	75	73	70	70	68	66	64

Left arm

Minutes	25	30	35	40	50	60	70	80	100
bulbs	68	65	65	65	64	64	64	64	64

By this experiment we find the hand generally exerted, but more particularly so in the left arm to which the friction was applied, in rotation ~~was~~ of 68 to 76. That is 8 beats more in the right than left arm. —
It may not be unnecessary to observe that when the friction was removed, the bulbs returned to the natural standard, much sooner in the left than right arm as may be seen in the above experiment. —

Experiment 2.d

Upon the application of spirits of wine & powder, the hand was applied to the same arm, when the result was as follows —

A bandage was made with flannel [illegible]
designated with the portable ligament & attach[illegible]
to the lower extremity. The result was [illegible]
welcome.

Great care being exercised in the
examination of the pulse in both arms & [illegible]
were the pulse of the anterior tibial artery.

Experiment was made at 1 o'clock [illegible]
in the afternoon.

The pulse beating 80 strokes in [illegible]
the minute

Anterior tibial artery

Minutes	2	5	10	15	20
pulse	80	81	83	85	88

At the wrist

Minutes	2	5	10	15	20
pulse	80	80	81	85	84

The anterior tibial artery of both legs was
examined without any perceptible difference
being observed in their pulsation, [illegible]
[illegible] to the wrists, some small [illegible]
was observed, the pulse in the right wrist [illegible]

My pulse beating (from a flannel

Right arm

Minutes	1	2	3	4	5
pulse	65	68	70	74	80

Left arm

Minutes	1	2	3	4	5
pulse	64	64	64	70	72

When the friction was stopped the pulse returned to its natural standard nearly in the same order as in the former case with the difference only, the pulse on the left arm continued excited much longer.—

This experiment was made at 1 o'clock in the afternoon the next day with the daughter of Robert in spirit of Venus. The following was the result —

This experiment was made on the left arm with a flannel impregnated with the Venus spirits.

The pulse beating 68 strokes in minutes

rather more frequent, scarcely amounting to beats in a minute. ——
Experiment 2d

Friction was made on my back & the rotatory liniment at 12 o'clock at night by Julia beating 64 strokes in a minute. The effects produced were as follows.
The anterior tibial artery of both legs, together with the radial artery of both arms were examined

May Julia beating 64 strokes in a minute

At the wrists
Minutes 2, 5, 10, 15, 20
Pulse 64, 64, 65, 66, 68

At the ankles
Minutes 2, 5, 10, 15, 20
Pulse, 64, 64, 66, 65, 68

Conclusion. The friction for 20 minutes there appeared to be no perceptible, difference in the pulsation, either at the wrists or ankles, conclusive, to that 68 strokes in a minute, when we ceased to examine it.

Left arm

minutes	1	2	3	4	5	6
pulse	68	70	73	76	80	88

Right arm

minutes	1	2	3	4	5	6
pulse	68	68	71	73	76	80

When I ceased to examine it.

Thus pulse was not only increased in frequency but in fullness & force, continuing so the afternoon & till 9 o'clock at night when I was compelled to go to bed in consequence of a violent pain in the head with throbbing of the temples. He was in all probability, from this cause, for of fever of no other to speak.*

It was the opinion of the illustrious Haller that the arteries were not endowed with a contractile power; of course they could not be pulsation in the arteries independent of the action of the heart; but this opinion is ably & satisfactorily refuted

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this Dr Flint, he infers it, 1st from the frequency exhibited in several diseases, in all local inflammations a paroxysmic for instance, there is violent action of the arteries, totally unconnected with the action of the heart, for the pulse will beat one hundred strokes in a minute in the part affected & the usual number at the heart. 2d from the muscular fibre of the nerves of the arterial coats, the muscular fibres being destitute of vital ability. He goes still further & contends for the contractility of the veins; this I infer says our illustrious author, 1st from the muscular nature of their fibres & 2d from pulsation being observed in the vena cava near the heart. &c. Many experiments goes to confirm this this doctrine, proving the fact incontrovertably. ——

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which they should be applied, their effects on the bloodvessels, nerves, muscles, &c, skin &c. Mentioned their effects when applied generally & locally & likewise their influence on the fluids. We will now proceed to speak of them in the cure of certain diseases.

1st Female for all defects of breath action

Here it should be applied either generally or locally according to the circumstances of the case or nature of the disease, with the dry hand, flesh brush or flannel simple or impregnated with certain stimulating substances, as Myrrh, Camphor dissolved in spirit of wine or volatile liniment. &c —

From the experiments made above on the healthy constitution, we may readily suppose them to be of advantage & which

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proved to be the case by the testimony of every medical writer. If would however by no means have a Physician to depend upon this alone as a remedy, for however it may certainly it may be in itself, it may frequently fail for the want of the co-operation of some other medicine. What Physician is there, that trusts to one medicine alone for the cure of a disease however powerful or inestimable it may be? Not one. To do so would argue a belief in in specifics, which is absurd. —

Friction seems more particularly adapted to the cure of certain disorders, as Typhus fever, Rheumatic & Rheumatalgic &c. the former viz. Typhus fever it should be applied generally & probably more good would be derived from frequent flesh brush. — For Rheumatism

of Rheumatalgia, it should be applied to the extremities. The dry, hard or flannel impregnated with certain stimulating substances would be best here.

The obstructed viscera

should be applied to the abdomen opposite to the viscus or viscera affected.

The obstructed perspiration

The application of friction should be made to the whole surface of the body, & frequently repeated.

The old age

This is characterized by regularity of pulse, low or sunken tones

as seeing, hearing, touch. loss of memory, imbecility of body & mind. tremors, corrugation of skin. projection of head falling off of hair &c. — Dr Prichard in his excellent lectures on animal life; shows the effects of certain stimuli acting on sensibility & excitability which is extended in different degrees both to external & internal; over the whole body: now as there is great attachment to the natural stimuli in old age this must necessarily be conquered, & this may be in part remedied & at least old age may be rendered comfortable, by substituting artificial stimuli; there is more necessarily to prohibit in this instance as

friction. To obtain the greatest advantage from this, it should be applied over the whole body & daily repeated. The Chinese custom of shampooing which is nothing more than a modification of friction, was recommended by them of the greatest importance in old age, renovating & invigorating as it were the old, inducing a return of youthful vigor & activity. This long a fact that from use not by feel. Friction properly applied & continued an sufficient length of time.

The coldness of the extremities

Friction has been a remedy in this from time immemorial as a cure

from the earliest records of Physic.
We want no better proof of its efficacy
than its continued use, at this
enlightened period of medical science.

The Head-ache

Friction has been to be an excellent
remedy here, from some facts mentioned in the Lectures
where the most excoriating, hair
pulled, to pleasurable sensations, this
can be excited to the most
extreme degree by friction. The
effervescences are the parts to which
it should be applied in this disease
more particularly, to the palms
of the hands & soles of the feet. —

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The time for using friction

This is of great importance to be known: for its failure in the cure of disease, is frequently, I have no doubt to be attributed to this cause. To the experienced Physician, who has made the laws & functions of the animal Oeconomy his study, the following observations would be unnecessary; but how few are they who either observe correctly, reason properly or judge rightly of the nature of disease: such without a guide, would be dangerous men to deal with, & I have no doubt (in the language of Sydenham) they would slay their thousands. The time of using it appears to me to be most proper in the morning, for this reason

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the system — is in a more exaltated state at that time & of course the effect produced will be much greater, not having any of its excitability exhausted by the numerous stimuli that act on the body during the day —

The manner of using friction

It should be gentle at first & succeed gradually in force, till the desired effect is produced. &c —

The length of time for applying it —

should be according to circumstances and generally from half an hour to an hour will be found to answer best. —